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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/449,625	11/30/1999	HIROSHI OGAWA	Q56773	6506

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DARRYL MEXIC
SUGHRUE MION ZINN MACPEAK & SEAS PLLC
2100 PENNSYLVANIA AVENUE N W
WASHINGTON, DC 200373202

EXAMINER

LEE, SHUN K

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 01/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/449,625

Applicant(s)

OGAWA, HIROSHI

Examiner

Shun Lee

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 and 19 October 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6 and 7. 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 15 October 2001 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because each foreign patent or published foreign patent application listed in an information disclosure statement must be identified by the publication date indicated on the patent or published application and a legible copy of each foreign patent or published foreign patent application is required. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4, 6, 8, 10, 12, 14, 16, and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 recites the limitation that "the stimuable phosphor-containing coating solution is discharged in a second plane". Thus the angle formed by the direction in

which the stimuable phosphor-containing coating solution is discharged and the second plane is 0° since the stimuable phosphor-containing coating solution is discharged in the second plane. Claim 18 also recites the limitation of "an angle formed by the direction in which the stimuable phosphor-containing coating solution is discharged and the second plane is from 5 to 60°" which contradicts the limitation that the angle is 0° since the stimuable phosphor-containing coating solution is discharged in the second plane. Therefore, claim 18 fails to particularly point out and distinctly claim the subject matter (see α in Fig. 1). As illustrated in Fig. 1, a support is disposed on a roller having a roller axis, and a stimuable phosphor-containing coating solution is discharged from a discharge opening having a first and second edge parallel to said roller axis onto the support with said first edge near to said support than said second edge to said support, a second plane is formed by said roller axis and said second edge, an angle formed by the direction in which the stimuable phosphor-containing coating solution is discharged and the second plane is from 5 to 60°.

Claims 4, 6, 8, 10, 12, 14, and 16 depend from canceled claim 2 and thus are indefinite.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 5, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagita *et al.* (US 5,877,504) in view of Van Havenbergh *et al.* (US 5,340,661).

In regard to claim 1, Yanagita *et al.* disclose a method of manufacturing a radiation image conversion panel in which a stimuable phosphor-containing coating solution, which contains at least a stimuable phosphor and a binder (column 10, lines 51-57), is applied to a support by use of a coating means such as a doctor blade, roll coater, knife-coater, extrusion coater, and so forth (column 11, lines 40-45) such that the film thickness of a coated film of the stimuable phosphor-containing coating solution is for example 250 μm (column 17, lines 44 and 45). The method of Yanagita *et al.* lacks an explicit description that the film thickness of the coated film of the stimuable phosphor-containing coating solution is from 300 to 800 μm . Van Havenbergh *et al.* teach that the film thickness of the coated film of the stimuable phosphor-containing coating solution is from 10 to 1,000 μm (preferably 150 to 250 μm) in order to obtain a radiographic screen of desired sensitivity (column 8, lines 54-59). Therefore it would be obvious to one of ordinary skill to provide a 300 to 800 μm thick stimuable phosphor film in the method of Yanagita *et al.*, in order to obtain a radiographic screen of desired sensitivity as taught by Van Havenbergh *et al.*

In regard to claim 5 which is dependent on claim 1, the method of Yanagita *et al.* lacks an explicit description that the viscosity of the stimuable phosphor-containing coating solution is from 1 to 10 Pa·s. Yanagita *et al.* teach that by optimizing the viscosity (e.g., 23 Ps \equiv 2.3 Pa·s; see column 17, lines 39 and 40) of the coating solution, a high filling ratio of the phosphor can be obtained (column 5, lines 41-53). Therefore it

would be obvious to one of ordinary skill to provide a stimuable phosphor-containing coating solution with a viscosity of 1 to 10 Pa-s in the method of Yanagita *et al.*, in order to obtain a high filling ratio of the phosphor.

In regard to claim 19, Yanagita *et al.* disclose a radiation image conversion panel obtained by the method of manufacturing a radiation image conversion panel in which a stimuable phosphor-containing coating solution, which contains at least a stimuable phosphor and a binder (column 10, lines 51-57), is applied to a support by use of a coating means such as a doctor blade, roll coater, knife-coater, extrusion coater, and so forth (column 11, lines 40-45) such that the film thickness of a coated film of the stimuable phosphor-containing coating solution is for example 250 μm (column 17, lines 44 and 45). The radiation image conversion panel of Yanagita *et al.* lacks an explicit description that the film thickness of the coated film of the stimuable phosphor-containing coating solution is from 300 to 800 μm . Van Havenbergh *et al.* teach that the film thickness of the coated film of the stimuable phosphor-containing coating solution is from 10 to 1,000 μm (preferably 150 to 250 μm) in order to obtain a radiographic screen of desired sensitivity (column 8, lines 54-59). Therefore it would be obvious to one of ordinary skill to provide a 300 to 800 μm thick stimuable phosphor film in the radiation image conversion panel of Yanagita *et al.*, in order to obtain a radiographic screen of desired sensitivity as taught by Van Havenbergh *et al.*

6. Claims 3, 7, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagita *et al.* (US 5,877,504) in view of Van Havenbergh *et al.*

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(US 5,340,661) as applied to claim 1 above, and further in view of Tsunoda *et al.*

(US 5,458,913) and Beguin (US 2,681,294).

In regard to claim 3 (which is dependent on claim 1) and claim 20 (which is dependent on claim 1), the modified method of Yanagita *et al.* lacks an explicit description that at least one of the support and the extrusion coater is moved, or that the speed of the movement is from 0.5 to 5 m/min (or 0.5 to 50 m/min). Extrusion coaters are well known in the art. For example, Beguin teaches that the thickness of the coating depends on the speed of movement of the support relative to the extrusion coater (*i.e.*, the faster the speed, the thinner the coating, see column 7, lines 14-21). Tsunoda *et al.* teach to move the support relative to the extrusion coater (*e.g.*, a speed of up to 1000 m/min) in order to obtain a desired thickness of the coating (column 5, lines 37-40). Therefore it would be obvious to one of ordinary skill to move the support relative to the extrusion coater at a speed of 0.5 to 5 m/min (or 0.5 to 50 m/min) in the modified method of Yanagita *et al.*, in order to obtain a desired thickness of the coating as taught by Tsunoda *et al.* and Beguin.

In regard to claim 7 which is dependent on claim 3, the modified method of Yanagita *et al.* lacks an explicit description that the viscosity of the stimuable phosphor-containing coating solution is from 1 to 10 Pa·s. Yanagita *et al.* teach that by optimizing the viscosity (*e.g.*, 23 Ps \equiv 2.3 Pa·s; see column 17, lines 39 and 40) of the coating solution, a high filling ratio of the phosphor can be obtained (column 5, lines 41-53). Therefore it would be obvious to one of ordinary skill to provide a stimuable

phosphor-containing coating solution with a viscosity of 1 to 10 Pa·s in the modified method of Yanagita *et al.*, in order to obtain a high filling ratio of the phosphor.

In regard to claim **21** which is dependent on claim 19, the modified radiation image conversion panel of Yanagita *et al.* lacks an explicit description that at least one of the support and the extrusion coater is moved, or that the speed of the movement is from 0.5 to 5 m/min. Extrusion coaters are well known in the art. For example, Beguin teaches that the thickness of the coating depends on the speed of movement of the support relative to the extrusion coater (*i.e.*, the faster the speed, the thinner the coating, see column 7, lines 14-21). Tsunoda *et al.* teach to move the support relative to the extrusion coater (*e.g.*, a speed of up to 1000 m/min) in order to obtain a desired thickness of the coating (column 5, lines 37-40). Therefore it would be obvious to one of ordinary skill to move the support relative to the extrusion coater at a speed of 0.5 to 5 m/min in the modified radiation image conversion panel of Yanagita *et al.*, in order to obtain a desired thickness of the coating as taught by Tsunoda *et al.* and Beguin.

7. Claims 9, 13, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagita *et al.* (US 5,877,504) in view of Van Havenbergh *et al.* (US 5,340,661) as applied to claims 1 and 5 above, and further in view of O'Brien (US 4,445,458).

In regard to claim **9** (which is dependent on claim 1), claim **13** (which is dependent on claim 5), and claim **22** (which is dependent on claim 1), the modified method of Yanagita *et al.* lacks that the stimuable phosphor-containing coating solution is applied such that a gap A (μm) between a discharge opening at the tip of the

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extrusion coater and the support, and a film thickness B (μm) of the coated film of the stimuable phosphor-containing coating solution satisfy one of the following relational expression: $0.75 \times B + 100 \mu\text{m} \leq A \leq 1.10 \times B + 130 \mu\text{m}$ or $0.80 \times B + 110 \mu\text{m} \leq A \leq 1.05 \times B + 130 \mu\text{m}$. O'Brien teaches (column 4, line 42 to column 5, line 3) that in order to obtain a high quality coating, a gap between a discharge opening at the tip of the extrusion coater and the support is to be adjusted $\pm d$ (where d is in the range 0 to about 0.060 in $\equiv 1524 \mu\text{m}$; see Fig. 3) depending on the coating solution flow properties, coating thickness, coating speed, and obtuse angle 64 (see Fig. 3). Therefore it would be obvious to one of ordinary skill to adjust the gap A (e.g., $0.75 \times B + 100 \mu\text{m} \leq A \leq 1.10 \times B + 130 \mu\text{m}$) in the modified method of Yanagita *et al.*, in order to obtain a high quality coating as taught by O'Brien.

In regard to claim 17 which is dependent on claim 1, the modified method of Yanagita *et al.* lacks that the extrusion coater is disposed on a surface of a first plane, and the support is disposed on a roller whose axis is located parallel to a direction orthogonal to the direction in which the stimuable phosphor-containing coating solution is discharged in a second plane that is located above the discharge opening at the tip of the extrusion coater and parallel to the first plane, such that an angle formed by, on the one hand, the direction of the shortest distance between the tip discharge opening and, on the other hand, the roller and the second plane is from 0 to 30°. O'Brien teaches (column 3, lines 38-48) it is known in the art that an angle (A in Fig. 2) formed by the direction in which the coating solution is discharged (32 in Fig. 2) and a direction of the shortest distance between the tip discharge opening and the roller (which is parallel to R

in Fig. 2) is need in order to properly apply a coating. Therefore it would be obvious to one of ordinary skill to provide an angle A (e.g., 5 to 60°) in the modified method of Yanagita *et al.*, in order to properly apply a coating as taught by O'Brien.

In regard to claim 18 which is dependent on claim 1 in so far as understood, the modified method of Yanagita *et al.* lacks that the support is disposed on a roller with an axis and an angle formed by the direction in which the stimuable phosphor-containing coating solution is discharged and a plane formed by the axis and the discharge opening tip furthest away from the roller is from 5 to 60°. O'Brien teaches (column 3, lines 38-48) it is known in the art that an angle (A in Fig. 2) formed by the direction in which the coating solution is discharged (32 in Fig. 2) and a direction orthogonal to the web (*i.e.*, support; see R in Fig. 2) is need in order to properly apply a coating. Therefore it would be obvious to one of ordinary skill to provide an angle A (e.g., 5 to 60°) in the modified method of Yanagita *et al.*, in order to properly apply a coating as taught by O'Brien.

8. Claims 11 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagita *et al.* (US 5,877,504) in view of Van Havenbergh *et al.* (US 5,340,661), Tsunoda *et al.* (US 5,458,913), and Beguin (US 2,681,294) as applied to claims 3 and 7 above, and further in view of O'Brien (US 4,445,458).

In regard to claim 11 (which is dependent on claim 3) and claim 15 (which is dependent on claim 7), the method of Yanagita *et al.* lacks that the stimuable phosphor-containing coating solution is applied such that a gap A (μm) between a discharge opening at the tip of the extrusion coater and the support, and a film thickness B (μm) of

the coated film of the stimuable phosphor-containing coating solution satisfy the following relational expression: $0.75 \times B + 100 \mu\text{m} \leq A \leq 1.10 \times B + 130 \mu\text{m}$. O'Brien teaches (column 4, line 42 to column 5, line 3) that in order to obtain a high quality coating, a gap between a discharge opening at the tip of the extrusion coater and the support is to be adjusted $\pm d$ (where d is in the range 0 to about 0.060 in $\equiv 1524 \mu\text{m}$; see Fig. 3) depending on the coating solution flow properties, coating thickness, coating speed, and obtuse angle 64 (see Fig. 3). Therefore it would be obvious to one of ordinary skill to adjust the gap A (e.g., $0.75 \times B + 100 \mu\text{m} \leq A \leq 1.10 \times B + 130 \mu\text{m}$) in the method of Yanagita *et al.*, in order to obtain a high quality coating as taught by O'Brien.

9. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagita *et al.* (US 5,877,504) in view of Van Havenbergh *et al.* (US 5,340,661) and O'Brien (US 4,445,458).

In regard to claims **23** and **24**, it is noted claims 23 and 24 are claims 9 and 22, respectively, rewritten in independent form. Thus the grounds of rejection are similar to the grounds of rejection of claims 9 and 22 (see above).

10. Applicant is advised that should claims 23 and/or 24 be found allowable, claims 9 and/or 22, respectively will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Response to Arguments

11. Applicant's arguments filed 15 October 2001 have been fully considered but they are not persuasive.

It is noted that applicant's only argument in regard claims 3-8, 17, and 18 is that claims 3-8, 17, and 18 depend from claim 1. In regard to claims 1 and 19, applicant argues (first two paragraphs on pg. 9 of remarks filed 15 October 2001) that Yanagita *et al.* only disclose 250 μm thickness and that the amendment of claims 1 and 19 replacing "100 μm or more" with --in the range of from 300 to 800 μm -- is allowable over Yanagita *et al.* Examiner respectfully disagrees. Claim 2 (which has been canceled) recites the limitation of 200 to 1,000 μm thick stimuable phosphor film and applicant failed to present an argument with regard to Yanagita *et al.* in view of Van Havenbergh *et al.* Therefore it would be obvious to one of ordinary skill to provide a 300 to 800 μm thick stimuable phosphor film in the method of Yanagita *et al.*, in order to obtain a radiographic screen of desired sensitivity as taught by Van Havenbergh *et al.*

In regard to claims 9-16, applicant argues (last paragraph on pg. 9 of remarks filed 15 October 2001) that O'Brien does not suggest the adjustment of the gap A as recited in the claims. Examiner respectfully disagrees. It is noted that on pg. 12, lines 1-4 of the specification states that the "gap A (μm) means the shortest distance between the tip discharge opening 3b, from which the stimuable phosphor-containing coating solution 4 is discharged, and the support". O'Brien teaches (column 4, lines 51-60) to position a first edge of a tip discharge opening at B+d which as illustrated in Fig. 3 would be the shortest distance between tip discharge opening and the support and thus

the distance between the first edge and the support is A as recited in the claims. As stated in the previous office action, O'Brien teaches (column 4, line 42 to column 5, line 3) that in order to obtain a high quality coating, a gap between a discharge opening at the tip of the extrusion coater and the support is to be adjusted $\pm d$ (where d is in the range 0 to about 0.060 in $\approx 1524 \mu\text{m}$; see Fig. 3) depending on the coating solution flow properties, coating thickness, coating speed, and obtuse angle 64 (see Fig. 3). Therefore it would be obvious to one of ordinary skill to adjust the gap A (e.g., $0.75 \times B + 100 \mu\text{m} \leq A \leq 1.10 \times B + 130 \mu\text{m}$) in the method of Yanagita *et al.*, in order to obtain a high quality coating as taught by O'Brien.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (703) 308-4860. The examiner can normally be reached on Tuesday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham can be reached on (703) 308-4090. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


CONSTANTINE HANNAHER
PRIMARY EXAMINER
GROUP ART UNIT 2878

SL
December 20, 2001